

# ATOM USERS' GROUP CANADA

## Newsletter #1

Membership in the Atom Users' Group Canada has been growing steadily through the summer and now more strongly in the fall. Most dealers are now advising purchasers about the group and we have members from coast to coast. To get the most value out of the Newsletter, it is important that people write in with their ideas, questions or suggestions. It is hoped that upcoming issues of the Newsletter will include reviews on the disc drive, various utility ROM chips, memory expansion boards and other hardware in addition to software. If you can write a review on these or other topics, please send it in. If not just drop me a line with your comments. A number of readers would like to know more about the disc drive.

With this issue you will receive a list of members from your part of the country. Why not contact one of them? Two heads are better than one and you may find that some-one else is working on the same ideas as yourself.

John Wood  
October 1982

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For the benefit of the members of the Group.

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We are grateful to Brian Gladstone of Toronto for the following contribution.

## THE POWERFUL PRINT(\$) STATEMENT

Section 18 of Atomic Theory and Practice makes reference to the diverse and powerful print statement in Atom BASIC. For greater speed and more efficient use of RAM space, the PRINT command should be abbreviated as "P."

Using this statement, we can access the entire ASCII character code, as well as various ASCII instruction codes.

For example, type the following:

```
P.$65
```

The Atom will respond with an "A", as the ASCII code for the letter "A" is decimal 65. All of the other characters, and part of the Atom's resident graphics may also be produced in this manner. A simple routine will produce the entire character set:

```
10F.X=32 TO 255
20P.$X"=ASCII"X'
30N.;E.
```

Note that code 32 is a space. You can easily see now which of the ASCII code numbers represent graphic symbols. (This is only a partial listing of all of the Atom's resident graphic characters).

Many of the ASCII codes below 32 have very important functions in Atom basic. These are explained on pages 131 and 132 in AT&P. Some of the more useful control codes are as follows.

P.\$2 turns on printer.

P.\$3 turns off printer.

P.\$6 turns on VDU (screen). This is used after turning the screen off with P.\$21 (see below).

P.\$7 produces that only too familiar bleep (for one half second) on the internal speaker.

P.\$8 backspaces cursor one position.

P.\$9 advances cursor one position.

P.\$10 moves cursor down one line.

P.\$11 moves cursor up one line.

P.\$12 clears the screen and positions cursor in top left corner. Same as CLS in other BASICS.

P.\$13 moves cursor to the start of the current line. Same as the return key.

P.\$14 allows only 16 lines of type to be displayed at a time on the screen. Hit any key to continue (except ESC). Great before a LIST command.

P.\$15 turns off P.\$14 and allows for complete listings.

P.\$21 turns off output to VDU(screen). This is especially useful when used in conjunction with P.\$6; when the two are used around an assembler routine.

P.\$30 moves cursor to top left of screen (as P.\$12) but does not clear screen.

These commands may be used in direct mode or as part of a program. Try typing P.\$12 or P.\$30 followed by RETURN.

Of course the use of these "P.\$" functions is endless in Acorn programming and these few words have only touched the surface. But this should give you much insight into developing more efficient program techniques.

### INTERESTING ADDRESSES

In this issue we have two addresses in ROM. These are the start addresses for routines which both allow the keyboard to be read during a program. The routine at memory location #FE94 (hexadecimal) instructs the Atom to wait for a key to be pressed before continuing then put the ASCII code for the character in the accumulator. The one at #FE71 looks to see if a key is pressed and if so puts the key number in the Y register.

The routine at #FE94 is often used in BASIC programs simply to halt execution of the program until any key is pressed. This is achieved with a straightforward LINK #FE94. If the key is to be read an assembler routine is required.

The following uses both these routines to display the key number for any key.

```
10 DIM A(1),P(-1)
20[;JSR #FE71;STY #80;RTS;]
30aLINK TOP
40 P.?#80'
50 LINK#FE94
60 GOTOa
100 END
```

The routine at #FE71 uses all registers and leaves the carry flag at 0 if a key is pressed. If no key is pressed, the carry flag is set to 1.

With the routine at #FE94 the X and Y registers are not changed and it is the ASCII code for the key pressed which is put in A.

The game listed on the KIDS PAGE uses both these routines and the RAM addresses discussed in Newsletter #0 to move the cursor around the screen.

## READERS ASK

William Carew - VE3 MEW is interested in all aspects of interfacing his Atom with amateur radio. He would like to send and receive CW also ASCII and RTTY. He is also hoping to control antennae rotors from the Atom.

If anybody has a program or circuit which would help, please send them to the Newsletter. I will forward them and make them available to others who may be interested.

I have not heard of people sending programs by radio, Bill. I do know that they can be sent by telephone even without a modem. Simply save the program on cassette then play it over the 'phone and record it at the other end. Crude, but it works.

Several people are looking for some way to control a cassette recorder from the Atom. Surely somebody has come up with a way by now. It would seem that bit 3 of port C (Address #B002) could be used. This appears on pin 7 of SK2. (See A.T.&P. page 194 and Atom Technical Manual page 15.)

Donald Smith - 61 Trench Street, Richmond Hill, ONT. would welcome any information on connecting an Epson MX80 (Graftrax plus) printer to the Atom.

Provided that you have the printer interface installed on the Atom board (ie. a 6522 VIA in position IC1 and a 74LS244 in position IC50), your dealer should be able to supply the required connecting ribbon. (Part numbers are given in the Atom Technical Manual on page 23). You may have to ground the pin corresponding to data bit 7 on PL5. Some parallel printers use a high signal on this line to specify expanded characters.

If anyone has a software routine for a printer with graphics capabilities, this would be of interest to many readers.

## Competition:

Summer is a busy time and many readers did not get around to entering our competition. To give you another chance it is being extended. So put on your thinking caps and give it your best shot.

Challenge No.1 -For young people in Grade 8 or under:  
Program a Tic-Tac-Toe game on the ATOM.

Challenge No.2 -For young people in Grade 9 and above:  
Program a TURTLE (childrens computer graphics game, as in LOGO) on the ATOM.

PRIZES -One ATOM software tape or book to each winner, courtesy of Niagara MicroComputer.

## Rules:

- 1) Contestants must be residents of Canada.
- 2) All programs submitted must have been written by the contestant.
- 3) Contestants should state their name, address and school grade.
- 4) Submit your program on cassette with documentation to:  
Niagara MicroComputer, Church St. & Webber Rd., FENWICK, Ontario L0S 1C0, post marked on or before December 15, 1982.
- 5) A panel of judges will be appointed by John Wood of the Atom Users' Group Canada. The judges decisions are final.
- 6) Niagara MicroComputer personnel and their immediate family are not eligible.
- 7) All entries become the property of the Atom Users' Group Canada. Tapes will be returned.

## Review:

### HYPERFIRE

from Program Power

HYPERFIRE is a fast moving shooting, swooping, diving, bombing game with high resolution colour graphics and incredible sound effects. The attackers move in from the right of the screen but start shooting at you before they appear. At the top of the screen is a small inset which shows where the attackers are coming from. You can move up and down or forward to meet them but you can't shoot them until they appear on the full screen.

Some young people who have seen it rate it the best action game they have come across.

Review:

## AIR ATTACK

from Program Power

This very long program loads into 4 1/2 K of lower text space, then, by means of the \*RUN command required to run it, loads another 5 1/2 K into upper text space. However the complexity of the effects generated make it worth all the waiting.

You are the commander of an anti-aircraft battery. Your field of view is your gun sight over the sky line of a city. After a warning from radar showing the direction in which the next plane was spotted, you swing the gun round and try to find the plane in the night sky. If you have got it right you pick up the intruder and try to get it in your sights as it gets larger before swooping away into the distance.

The sound effects are terrific and the graphics, although not high resolution, are very varied and not repetitive.

An action simulation for those who enjoy thinking quickly in addition to having quick reactions.

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## TO BASIC OR NOT TOO BASIC

We have heard that assembler is faster than BASIC. Our thanks to Ray Minassian of Toronto for the following program which shows just how much faster. The program fills the screen with each character in turn after giving you the choice of doing it in BASIC (lines 110-140) or with machine code assembled from lines 30-70.

I would recommend that you try assembler before BASIC. Although you see some interesting patterns during the BASIC execution, it is much slower.

```
10 DIMA(1),VV(2),F(-1)
20 F.$21
30 C;;VV0LDX@255;LDY@0
40:VV1INY
50:VV2INX;TYA;STA#8000,X;STA#8100,X
60CPX@255;BNEVV2
70CPY@255;BNEVV1;RTS;J
80 F.$6
90aINPUT"TYPE A FOR ASSEMBLER""OR B FOR BASIC"$A
100 IF$A="A";LINKVV0;GOTOa
110 FORJ=0TO255
120 FORK=0TO255
130 K?#8000=J;K?#8100=J
140 N.K;N.J;GOTOa
150 END
```

## The Atom Word Pack -- by a computer illiterate

This article is written for the computer illiterate as well as for those who are familiar with the virtues of a home computer. I never thought I'd be doing it but here I am singing the praises of an item of Acorn software.

It all began last Christmas when I received an Atom Word Pack. I hadn't really expected to use the Atom, except perhaps to play the odd game, but I was to discover what a time saving device I had acquired before the end of the Christmas season.

As usual I sat down to compose the many "thank you" and other letters we send to relatives and friends at that time of year. It is usually quite a boring task as much of what is written is repeated a dozen or more times. This time I decided to put to use my new gift. I wrote one master letter. It was easy to make corrections when the letter was finished and to store that letter on tape for future use. In all more than twelve letters were written that night with the help of the word pack. Each one was different and personal. Names were changed throughout the text.

What a boon any secretary would find the word pack to be when the boss decides the letter or report she has just typed must be retyped because he has changed his mind about its content! For about \$800 the home typist can print out work at least as good as that on a typewriter costing twice as much, and if he learns to type the executive can compile his reports using a computer and word pack. The Atom Word Pack certainly adds a new dimension to the world of the Atom.

### The Atom Word Pack (Part II)

The Word Pack comes as a ROM chip which must be inserted in the Utility ROM socket labelled IC24 on the Atom board. Because it is in ROM the facility is always available on power up and does not take up additional memory space. The Atom functions as normal but in addition will recognise the commands EDIT and TEXT.

EDIT is the link command which allows text to be entered, edited and formatted for output to a printer or saved. TEXT is used to edit programs. A BASIC program is written or loaded in the upper text space starting at #8200. The command TEXT then causes anything printed on the screen to be copied to the text area used by the Word Pack, starting at #2800. So LIST copies the program. The command EDIT then brings the Word Pack into play allowing editing. On command, the program can then be copied back to the upper text area.

There is an extensive range of editor commands allowing text to be added, inserted, copied, and transferred or changed. The edited text can be saved to cassette or disc then reloaded to add to other text. When reloading text files these can be added



only to the end of any text which is already present. You can't insert paragraphs, directly from cassette, but you can add them to the end of the text then transfer them to any place in the text. This Newsletter was written in several sections then loaded together and printed out as one document.

There is also a series of processor commands to allow the text to be formatted. These include setting margins, right justification, centering, page numbering and single or double spacing. Printer control characters can be included but they must be at the start of a line.

The screen format takes a bit of getting used to. Text is entered without regard to individual lines, unless you wish to force a new line. It appears as upper and lower case characters using high resolution graphics, with thirty two characters per line. It is not possible to see how it will be broken down into lines until it is printed out.

#### DEALERS ANNOUNCEMENTS

Dealers wishing to inform readers of the Newsletter of hardware and software related to the Atom are invited to write to Atom Users' Group Canada, 812 Cabot Trail, Milton, ONT. L9T 3M8. There is no charge for this service, but we cannot guarantee to include every item submitted. Although we strive for accuracy, we cannot accept responsibility for the content of these notices and they are not to be considered as binding offers to sell, by the dealers concerned.

Affordable Computers, 202 Kent Street, Charlottetown, P.E.I. ;  
Acorn Software, Game Packs 1-10, Database, Atom Business, Desk Diary, FORTH, Music Synthesiser, Soft VDU, Chess, Utility Pack I 747 Flight (Bug-Byte).

Word Pack, Atomcalc, Toolbox ROMs.

Printer interface, PL4 plug and cable, 64K RAM, Disc drive. Plus a version of FORTH on disc.

Altair, 660 Progress Avenue, Kingston, ONT. ;

A wide range of Acorn software.

Centronics connector, Eurocard connector and connecting ribbons.

Gladstone Electronics, 1736 Avenue Road, Toronto, ONT. ;

Complete range of Acornsoft programs.

Hyperfire, Air Attack (Program Power)

Word Pack, Atomcalc, Programmers Toolbox ROMs.

Disc drive with improved utilities disc, 16K, 32K and 64K RAM extension boards, ROM selector board allowing up to 4 ROMs to be permanently installed and software selectable.

Niagara MicroComputer, Church St. & Weber Rd., Fenwick, ONT. ;

Complete line of Atom hardware, software, magnetic medium and literature.

Computer literacy and programming courses.

Software and applications development.

Call (416) 892-8451 or 735-7998 for special price on "Word Processor" package including Word Pack, interface, cabling and dot-matrix or letter-quality printer.



# KIDS PAGE

```

10 REM ***star flight***
20 REM BY J C WOOD
30 P.$12
40 P.''"GUIDE YOUR SPACE SHIP AROUND""THE UNIVERSE"'
50 P."    UP A    LEFT <"" DOWN Z    RIGHT >""
60 P.''"PRESS SPACE BAR"'
70 LINK#FE94
80 F=0;REM BEST SCORE
90 X=10;REM NUMBER OF STARS
100cE=4;C=0;D=0;E=0;P.$12;?#8000=#2A
110 FORN=1TOX;T=ABSRNDZ#200;T?#8000=#2A;N.
120 ?#E0=15;?#DF=#81;?#DE=#80
130 ?#818F=#A0
140 DIM P(-1);P.$21
150C;JSR #FE71;STY #80;RTS;J;P.$6
160 LINK#FE94
170aLINK TOP
180 A=?#80
190 IFA=#1C;A=1
200 IFA=#3A;A=2
210 IFA=#1E;A=3
220 IFA=#21;A=4
230 IF A>4;A=B
240 IFABS(A-B)=2;A=B
250 IF A=0;A=B
260 WAIT
270 IF A=1; P.$8
280 IF A=2; P.$10
290 IF A=3;P.$9
300 IF A=4;P.$11
310 REM IF SHIP IS AT EDGE. REVERSE DIRECTION
320 IF ?#DE=0 AND ?#DF=#80;A=2
330 IF?#DE=#E0 AND ?#DF=#81;A=4
340 IF?#E0=0;A=3
350 IF?#E0=31;A=1
360 B=A
370 IF?(#100*?#DF+?#DE+?#E0)<>#A0;GOTO b
380 D=D+1
390 IF D>20;D=0;T=ABSRNDZ#200;T?#8000=#2A;E=E+1
400 GOTO a
410bPRINT$7$7$7'
420 IF E<6; P."beginner"'
430 IF E>5 AND E<20;P."average"'
440 IF E>19; P."super pilot"'
450 @=0;P."JOURNEY OF "E" LIGHT YEARS"'
460 IF E>F;F=E
470 P."BEST SCORE "F" LIGHT YEARS"'@=8
480 P."PRESS SPACE BAR TO GO AGAIN"'LINK#FE94;GOTO c
490 END

```

Have fun steering your ship around the universe as stars appear in your way. You can take off upwards or to the left or right, but not downwards. You can fly in any direction but you can't do a U-turn in space.

